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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/915,911 | 07/26/2001 | Yifan Gong | TI-30869 | 7358 |
| 23494 | 7590 | 07/01/2005 | EXAMINER | |
| TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265 | | | CHAWAN, VIJAY B | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2654 | |

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/915,911 | GONG, YIFAN | |
| | Examiner | Art Unit | |
| | Vijay B. Chawan | 2654 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed,⁴ may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 07 February 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 3-8 and 10-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 3-8, 10-16,19 is/are rejected.

7) Claim(s) 10,11,17 and 18 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 10, 11, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 3, 5, 12-16, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Neumeyer et al., (6,226,611).

As per claim 3, Neumeyer et al., teach a speech recognizer for decoding multiple HMM sets using a generic base sentence network comprising:

means for decoding HMM sets using the generic base sentence network and a recognizer recognizing speech using said decoded multiple HMM sets, wherein the means for decoding includes means for building recognition paths defined on expanded symbols and accessing said network using base symbols through a conversion function that gives the base symbol of any expanded symbols, and vice versa (Col.10, lines 30-45, Neumeyer et al., teach or discuss a plurality, or sets of HMMs, i.e., a network. Col.10, line 53 – Col.11, line 54, Figure 4, of Neumeyer et al., shows sets of HMMs performing multiple duration calculations, therefore multiple sets, to find the correct acceptable path, especially in a sentence grammar structure, Col.1, lines 37-44).

As per claim 5, Neumeyer et al., teach a speech recognition search method for decoding multiple HMM sets using a generic base sentence network comprising: providing a generic grammars, providing expanded symbols representing a network of HMM sets and building recognition paths defined by the expanded symbols and accessing the generic base sentence network using base symbols through a proper conversion function that gives the base symbol of any expanded symbols, and vice versa ((Col.10, lines 30-45, Neumeyer et al., teach or discuss a plurality, or sets of HMMs, i.e., a network. Col.10, line 53 – Col.11, line 51, Figure 4, of Neumeyer et al., shows sets of HMMs performing multiple duration calculations, therefore multiple sets, to find the correct acceptable path, especially in a sentence grammar structure, Col.1, lines 37-44)).

As per claim 7, Neumeyer et al., teach the method of claim 5, wherein said building step includes for each frame path propagation expansion based on the

grammar network and update-observation-probability (Col.10, line 53 – Col.11, line 51, Figure 4).

As per claim 8, Neumeyer et al., teach the method of claim 7, wherein said path propagation includes getting offsets that index each HMM set, retrieving individual expanded symbols for each HMM set that correspond to base symbols within the generic grammar network, and extending a Viterbi search for each expanded HMM set individually and separately by obtaining the HMM of the previous frame and expanding and storing a sequence set of HMM states both for within model path and cross model path and determining the path with the best transition probability (Col.11, lines 10-18).

As per claim 12, Neumeyer et al., teach a speech recognizer for decoding a plurality of model sets using a generic grammar network composed of base-symbols comprising: means for constructing recognition paths defined on expanded-symbols wherein each expanded-symbol references a model contained in one of the model sets, and means for determining expanded-symbols by a conversion function that maps a base-symbol of the generic base grammar network to a plurality of expanded-symbols and an expanded-symbol to its corresponding base-symbol (Col.10, lines 30-45, Neumeyer et al., teach or discuss a plurality, or sets of HMMs, i.e., a network. Col.10, line 53 – Col.11, line 54, Figure 4, of Neumeyer et al., shows sets of HMMs performing multiple duration calculations, therefore multiple sets, to find the correct acceptable path, especially in a sentence grammar structure, Col.1, lines 37-44).

As per claim 13, Neumeyer et al., teach the recognizer of claim 12, wherein said recognition path construction includes means for constraining each recognition path to

expanded-symbols referencing models within one model set (Col.10, line 53 – Col.11, line 51, Figure 4).

As per claim 14, Neumeyer et al., teach the recognizer of claim 12, wherein the model sets are HMM models (Col.10, line 53 – Col.11, line 51, Figure 4).

As per claim 15, Neumeyer et al., teach the recognizer wherein the models of each set correspond to a single environmental factor (Col.10, line 53 – Col.11, line 51, Figure 4).

As per claim 16, Neumeyer et al., teach the recognizer in claim 12, wherein the recognition procedure consists of a recognition path construction procedure and an update observation probability procedure (Col.10, line 53 – Col.11, line 51, Figure 4).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Naylor et al., (5,806,034).

As per claim 6, Naylor et al., teach a method of speech recognition for decoding multiple HMM sets using a generic base sentence network comprising the steps of: providing a generic network containing base symbols(Col.3,lines 30-40, Fig.2, items 32,34, 36);

a plurality of sets of HMMs where each set of HMMs corresponds to a single environmental factor such as for male and female (Col.6, lines 15-25);
each said set of HMMs enumerated in terms of expanded symbols which map to the generic network base symbols (Fig.4);
accessing said generic network using said base symbols through a conversion function that gives base symbols for expanded symbols to therefore decode multiple HMM sets using a generic base sentence grammar and using said HMM sets to recognize incoming speech (Figs. 5-7, Col.8, lines 45-52, Col.7, lines 49-55).

Naylor teaches multiple sets of HMMs because of the separate use of male speakers to train the HMMs (Col.6, lines 15-25) leading one to naturally conclude that a separate set of trained HMMs (using the male speakers) is available along with a set of trained HMMs using a general population.

Response to Arguments

6. Applicant's arguments with respect to claims 3-8, and 10-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vijay B. Chawan whose telephone number is (571) 272-7601. The examiner can normally be reached on Monday Through Friday 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vijay B. Chawan
Vijay B. Chawan
Primary Examiner
Art Unit 2654

vbc
6/25/05

VIJAY CHAWAN
PRIMARY EXAMINER